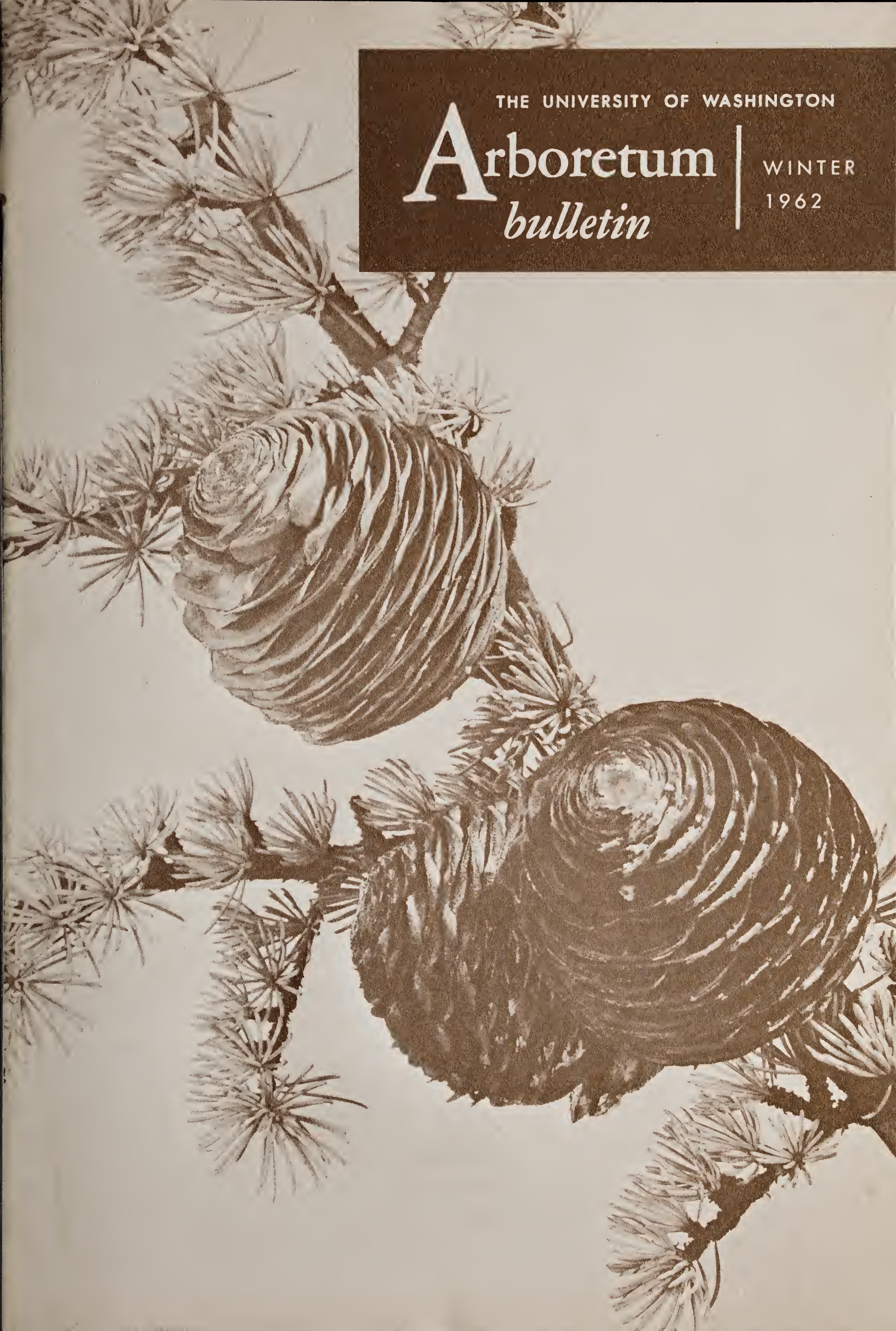
THE UNIVERSITY OF WASHINGTON

Arboretum bulletin

WINTER 1962



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Arboretum bulletin

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Winter, 1962

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Cover Picture:
Coning branch of *Cedrus atlantica* 'Glauca' slightly less than life size.
Photo by: William Eng

Bark

Mrs. Frantz Nehammer*

WHEN one listens with concentration to a symphony, not once but many times, there comes a keen appreciation and knowledge of the intricately interwoven harmonies that will forever be associated with this music. This is also true when one lives and works with nature's plants in a garden. A bond is welded through knowledge of their manifold characteristics so that each becomes an individual easily distinguished from another.

What goes into this knowledge? Certainly not alone knowing its name and origin but also in distinguishing characteristics one has become familiar with, as when it is gloriously in flower, heavy with fruit, excitingly scarlet in autumn, the form and branching pattern in winter. There is yet another way to identify our plants. It is the protective covering of the trunk and branches—the bark.

The bark, its texture, color, substances and quality, is often a key to the genus or species and many trees have outstandingly beautiful and interesting patterns. There is great variation in this covering from the very smooth and fine to the extremely rough and deep. The maturity of the tree will find changes, too, as the very young tree will often not show the true quality. Consider some types of barks and a few examples with which we may be familiar.

The deeply fissured and sometimes corky textures have a feeling of strength and depth; the ponderosa pine is a good example of this. The deep furrows appear to have been carved by the hand of a giant artist with painstaking care to emphasize the smooth plates of bark that give color and distinction to the trunk. In this same group of rough texture we find the hemlock, *Abies,* and spruces. Still rough but with a different quality are the cork-like ridges on the sweet gum *(Liquidambar styraciflua),* some *Quercus,* the cork-barked elm *(Ulmus racemosa)* and winged spindle *(Euonymus alatus).* The Hawthorns *(Crataegus)* are deeply furrowed and patterned in mature trees.

The shaggy and most times colorful barks that give the impression of a combed wool overcoat will always attract our attention. The redwood, *Sequoia sempervirens,* is possibly the dominant one of this group with the fibers in long thread-like mats. If it is seen with the late afternoon sun penetrating to the trunk, the color will rival our madrona. Those I recall in this group are all conifers, as the Japanese *Cryptomeria japonica* and *Thujopsis dolabrata,* the cypresses, junipers and thujas, including our native western red cedar *Thuja plicata.*

We progress to the smooth textures that invite the hand to touch the surface. Many in this group have interesting patterns. The

Below

Group of Birches on Foster's Island

Fig. 15 Photo by: Don Normark

*We are happy to welcome Mrs. Nehammer back to our pages after more than five years' absence.

Above

Stems and foliage of Cascara tree *Rhamnus Purshiana* in Arboretum.

FIG. 16 PHOTO BY: WHITIE MARTEN

winter cherry *(Prunus subhirtella* 'Autumnalis') in bloom now has speckled brown bark like the breast of a song sparrow. Most of the cherries have beautiful bark which are quite distinct from other barks. Take a walk through the Arboretum and observe the markings on the cherries. While there, seek out the *Acer tegmentosum* just west of the magnolias along the upper road. This maple has a satin smooth bark with creamy white striping that one will never forget. *Acer Davidii* nearby is similar in its bark character. There are many patterned barks in this group, as the fine tracery on *Styrax Obassia,* the stuartias, and *Halesia carolina,* the silverbell tree.

Yet another group comprises the barks that seem to have no depth for they peel each summer to give a bright fresh appearance and invite one to stroke the surface gently. The most outstanding example of this in the Pacific Northwest in the madrona *(Arbutus Menziesii)* for it rivals in smoothness and brilliance of color all other trees. Allied to this is the strawberry tree, *Arbutus Unedo,* and *Arctostaphylos columbiana,* native manzanita. All of these are truly beautiful in winter when color of this brilliance is lacking. The birches *(Betula)* belong in this group and there are many examples from ghostly gray to the glistening white of *Betula papyrifera,* the paper birch (fig. 15). In the Arboretum one finds good examples of *Eucalyptus* species along the upper road. They are young trees but the texture, color and quality of the bark are quite noticeable.

This is a loose classification, and there are not too many examples of each, for I believe it will be a wonderful experience to make an expedition of discovery through your garden, a trip through our wonderful Arboretum or when traveling along a highway. Try using this outstanding feature of a tree as an accent in the garden picture (figs. 16, 17).

Trunk of *Acer griseum* — Royston, Vancouver Island, B.C. Tree 25 years old.

FIG. 17 PHOTO BY: E. GRIEG

Advice to Young Gardeners from an Old Hand*

ELSE M. FRYE

IN MY EARLY DAYS, when I was a young "faculty wife," there was simply no such item as "Garden" in our budget. The pain and longing that accompanied my lagging steps as I passed nurseries and viewed red-berried cotoneasters, the yellow and scarlet foliage of autumn, the bright parade of spring bulbs, and met the sweet and pungent fragrance of summer flowers is remembered and still felt. How easily I could have had all of them—not in an instant but in a comparatively short time—time that would have allowed for planning and preparation.

Of utmost importance is a plan. Realize what you want and can use and eschew all else. This will differ in various localities, but it is a strange thing that in general it should be comprised of material that will drop into the native vegetation without conflict. I can write only of what I know, but the principles are the same anywhere and can be adapted to any locale.

A small greenhouse, a portion heated by electric cable, is a boon in saving time and energy but usually is not a possibility in the group for which I am writing. Next, a cold frame; but failing this, flats, apple boxes, tin cans may be used to set in the shade of shrubs or may be shaded by lath or canvas to eliminate the hottest rays of the sun. I know a young woman who is well on the way to landscaping a ten-acre tract by this simple means. It is very interesting to see her flats with growing cuttings—I won't say hundreds of different kinds of things, but they certainly approach a hundred.

There is an optimum time for taking cuttings but if an offering is made of something good at other seasons do not refuse it; the chances are some will "take." This had the weight of a precept in my mind and was the advice of an old gardener who brought it home by saying opportunities pass and most often are not repeated. As a matter of fact, I rarely refuse the kindness of seeds or cuttings. If I cannot use them, someone else will find the proper place. And when friends learn that cuttings and seeds are desired they are generous.

For cutting mediums I use various things. For all lime-lovers and, in general, plants from the Mediterranean region and all plants with hairy, woolly or powdery, glaucous-bloomed foliage I use a straight plasterer's sand. The complete drainage afforded reduces rotting, to which such plants are susceptible, to a minimum. Examples: Carnations, some Cistus, Helianthemum, etc. It is also good in cases where the cutting easily drops its leaves although root growth may be progressing. Clematis is a case in hand. This also happens when a cutting is taken too late in the season. The reason this is critical is that when evaporation through the leaves is stopped too much water accumulates at the roots and rotting ensues.

For dwarf conifer cuttings I liked a medium of two-thirds sand and one-third crumbled peat. For acid-loving plants such as camellias, heathers, rhododendrons, Pieris and many others I have used various mixtures; half sand and half peat; one-third sand, one-third peat and one-third vermiculite; all peat or all vermiculite. Vermiculite is light and therefore easily handled — good for an old woman!

In my own region — the Pacific Northwest

During the month of October, 1962, there passed from among us two well-loved members of that none-too-large group of down-to-earth, practical gardeners and plant lovers, Else M. Frye and Helen G. Buzard. It is trite but entirely true to say that we shall miss them; both had been so long in the Seattle area, become so well known and exerted so much influence in their different ways that there is no question of this. Their loss will be felt in many quarters, though their words will remain.

Elsewhere in this issue appear notices of both, written by long-time friends. We have also taken the opportunity to republish an article which each had contributed in the past to our BULLETIN, both to refresh the memories of our readers with their style and sound advice, and also to pay some small tribute towards the debt we owe them.

*Reprinted from THE ARBORETUM BULLETIN—Spring 1952

— the time for dwarf conifer cuttings is early February. Whenever I take cuttings of any kind I find it best, but not always possible, to cut them to size and drop them into a pail of water with enough potassium permanganate crystals to color it a pale magenta-pink on the spot. It eliminates bacterial infection and induces root-growth. Using a sharp razor blade I take the last year's side shoots of dwarf conifers, selecting those of preferably not more than two inches. I try to get a "heel" (a bit of the old wood) by cutting up and not down. In this class of plants it is important to cut off the lower inch of leaves—rubbing or tearing would leave wounds open to infection. All the growth chemicals are located in the apical bud so it must not be removed till roots are formed. Later, when the plant is well on the way, the apical buds are pinched out to induce a branching habit.

Soon after blooming, no matter when that is, the ericas, heaths—usually spring and early summer bloomers — begin to produce small side shoots. Before they get really woody they may be pulled from the older branches with a downward movement. This leaves a ragged heel which should be trimmed neatly. I like to cut off the lower leaves but many people find it well enough to rub them off. The callunas, heathers, are mostly summer and fall bloomers and are treated in the same manner. In both groups, when occasion demanded, cuttings were taken as late as October 15.

Rhododendron cuttings are taken from the first of June to the end of July, depending on the season. The important thing is to get them when they are somewhat crisp without too much wood throughout, though a bit of wood from the parent branch is necessary. Only experience gets the feel of this into one's hands. Small cuttings of one to two inches of the dwarf rhododendrons and longer — two to three inches—of larger specimens are used. Camellia cuttings, four to five inches, were taken in late summer or early fall.

Many deciduous shrub and tree cuttings may also be taken while wood is still "soft"—spiraeas, sumacs, Forsythias, etc. Such cuttings are usually longer, up to six inches. If the foliage drops and appears to be collapsing after a few days, reduce it by cutting in half. Personally, I like to leave as much foliage above ground as the cutting will stand—it all helps in getting the water to flow up and so keeps the foliage rigid.

In the days when I was growing plants for sale I used liquid Hormodin in exact concentrations and for exact periods of time suited to the individual groups of plants, following the table that accompanied the preparation. This was especially conducive to root production in the dwarf conifers. Now I use the powdered form in the concentration prescribed for acid-loving plants, and that is the group I like best, and with this I have reasonable luck.

Since space in my present small greenhouse is a factor, I try to get my cuttings into a growing medium as soon as sufficient root system has been established. Leaf mold with fine sand for the lime-lovers and leaf mold with peat for the acid-loving plants, and there they usually remain till they are planted out in a specially prepared bed the following spring where they remain till they are sizable enough for their permanent positions. This need not be a matter of years. Most gardeners use fillers which can be taken out as growth demands. This should not be altogether worthless stuff as the constant sight of such would certainly break down garden morale and have a deteriorating influence, but such plants need not be rare and hard to come by.

Enough for cuttings. There are few things that are completely stubborn. Pines are one such; *Magnolia grandiflora* is not easy.

The way of cuttings is the most painless way and certainly the one entailing least expenditure in acquiring quantities of handsome and unusual garden material. Also, one gains a year in comparison with plants from seed. But when a very great number of plants is required—say for a fine hedge or for distribution among friends—it is often necessary to depend on seeds. A greenhouse does make this easier because then those that are most viable immediately when ripe, such as prim-

roses, can be watched and wintered over under glass. It is certainly not necessary; most of the seeds we buy are kept over winter before distribution begins. Shrub seeds which ripen late I usually plant immediately and set the flats under the counters in the greenhouse; they will usually need little attention till spring when germination begins, though sometimes they do germinate immediately.

For the acid-loving plants the seed soil is made up of two parts leaf mold and one part of peat, finely pulverized. Firm it down. Time and plants are saved by planting sparsely. For lime-lovers or hairy-leaved plants, eliminate peat and use some fine sand instead. However, there is always some sand in the leaf mold I use because it comes from our own compost bins into which we throw all weeds from the garden and some sand naturally adheres to the roots.

I am most assiduous in watching the ripening of my own seeds and probably insistent on watching those of my friends as well! There is always a moment, not too soon and not too late, that importunes. The time to garner them is when capsules or pods are just starting to open or heads are loose and some seeds flying. Some seeds are best planted almost green—such as primroses. If by some mischance I have lost my crop I can often save some seedlings by lightly covering the fallen seeds with sandy leaf mold where they have dropped and then pick up the seedlings in the spring. There is always some loss in leaving things to nature in this way.

Another way of increasing plants is by way of division—this is especially applicable to perennials. Rooted pieces may be cut from the plant or, as in the case of a carnation, first separate the stems and pour sand into the center. When the stems are well rooted, cut them off and plant for a time in growing-on beds.

Certain plants that are peat-lovers and stoloniferous in habit, such as *Vaccinium Vitis-Idaea* and its variety—a plant I use very much as a ground cover—can be more

(Continued on Page 115)

A Peek Into Pandora's Jewel Box — 1954*

HELEN G. BUZARD

CAMELLIAS, new, newer and newest with names of people and places and names like poetry—'Melody Lane' and 'Frosty Morn,' 'Bride's Bouquet' and 'Seventh Heaven,' to gladden the heart of the camellia enthusiast. There is no thrill like a preview of new varieties, introduced and to be introduced, with the resultant conversation, discussing, comparing, evaluating.

There are several hundred camellias which might be considered "new" in the Northwest simply because they have not been seen or grown here. Many of these would, to the locale where they originated, be old varieties. Distribution bears an important relation to the age or newness of any plant and this is particularly true with camellias which seem rather laggard in their dispersal. No two seedling camellias are alike and the increasing of plants is a slow process so that, unless a variety is really put into mass production, it might be "out" for several years before it would reach all parts of the camellia world.

Another retarding factor is that camellias do not perform consistently; a good variety in the Northwest might not be so satisfactory in a drier, hotter section, and a fine performer in the south might lag or sulk with us. Only the true Camelliaphile is apt to gamble his money on an unproven variety.

On the other hand, the demand for "new" has been so great that most of the growers and many amateurs have felt compelled to put out new varieties. This has resulted in many being named and put on the market which have little or no merit. Not all new camellias

*Reprinted from THE ARBORETUM BULLETIN, Spring, 1954.

are seedlings. Some are sports of old varieties, others are old un-named varieties which have been enjoyed by their owners but have not been "discovered" by a grower or fancier. The expression in the "trade" for these is that they are "sleepers."

Very few of the seedlings are from hand-pollinated flowers. Some are from seed where the seed-bearing parent is known; some few others are from seed where the seed bearer is known and the pollen parent suspected. Of all the seeds planted only a very small fraction of 1 per cent will be worthwhile. Before a new variety is propagated it should have proven qualities: color, size, perfection of form, substance, florescence, general quality and distinction, and should be comparable to or excel any of the established varieties.

Among the varieties which have been grown in the Northwest and are of proven merit, none is more lovely than 'Auburn White,' a "sleeper." It is a very large, semi-double to single, white with just a hint of pink, heavy textured, petals sometimes slightly crinkled and sometimes folded about the golden yellow stamens. It blooms late in the season and is unaffected by weather.

It has long been the desire of every hybridizer to produce a fragrant camellia. 'Sweet Bon Air' is the answer to at least one of those dreams. It is a semi- to formal double white, with a very definite, fine sweet fragrance.

'Finlandia' is considered one of our best white camellias; 'Finlandia Variegated' is equally fine. A few years ago a grower had a red sport appear which he developed and called 'Red Finlandia.' Another sport, a soft rich pink of exquisite tone, is called 'Monte Carlo'; this sport had a marbled variety which is equally desirable. Soon there will be available still another sport of this fine camellia, a blush pink which is delicately pink in the bud, opens a very pale pink which has definite color when placed beside the white. One of the satisfactory features of "sports" is that they can be counted upon to perform in the same manner as the original.

So much emphasis is placed on size that it is gratifying to find a delightful small variety. 'Florence Daniell' is a perfectly formed peony-type flower of a soft pink color and small in size.

A camellia of contrasts is 'Tinsie,' a single with one row of bright red petals and white stamens and petaloids in a close tuft in the center.

'Joshua E. Youtz' is sometimes called 'White Daikagura' because it was at first thought that this very fine white was a sport of 'Daikagura.' Were it a sport it could be considered as satifactory as the original. However, it is supposed to be a seedling with 'Daikagura' blood and for this reason can be expected to perform as well as the parent. 'High Hat,' though perhaps not new enough to be included in these lists, is a pale pink sport of 'Daikagura' and is proving equally satisfactory.

Introduced at about the same time as 'High Hat' were two sports of 'Elegans' (Chandler), 'C. M. Wilson' and 'Grace Burkhard.' This was an instance of a variety sporting at about the same time in two widely separated parts of the country. 'C. M. Wilson,' however, was marketed first and so the pale pink sport of 'Elegans' carries that name. For years camellia enthusiasts have hoped for a pure white form of 'Elegans.' This spring 'Shiro Chan' will be available. It is a pure white and has all the perfection of form, size and substance of the parent.

'Flowerwood' is a sport of 'Mathotiana' and is identical in every respect but with the added interest of having the edges of the petals very finely serrated.

Occasionally a new variety will be very similar to an old one but may have some feature which enhances its value. 'Drama Girl' at first glance is just another 'Lady Clare.' Perhaps it is a little larger. This could not be determined unless they were grown under the same conditions. It may have a few more petals, but it is said to have the added advantage that the flower holds on the plant for a week or more in the south where 'Lady Clare' will drop in twenty-four hours.

'Marjorie Magnificent' is in the same category as 'Drama Girl.' It is the same fine pink and the same form as 'Magnoliaeflora' with perhaps a few more petals, but it is said to be very weather resistant, opening perfect flowers in cold or unfavorable weather. Should this be true in our area it would readily replace 'Magnoliaeflora' which is very lovely but so touchy about its surroundings.

'Melody Lane' is a very large semi-double to peony type, bluish pink variegated deeper pink. One very fine and interesting characteristic is its manner of blooming. It makes long growth and sets a flower bud in the axil of nearly every leaf.

'Masquerade' is a very large semi-double white which may have blooms with faint to heavy pink stripes or an almost all-pink flower. The sunburst effect of the golden yellow stamens gives it distinction.

'Spring Sonnet' is a sport of 'Hikaru-Genji' ('Herme') in the color of 'Pink Perfection.' Another sport of the same variety is 'Md Calusante Pink,' a semi-double with ruffled petals in a slightly deeper shade than 'Spring Sonnet.'

'Jessie Katz' is a large semi-double watermelon-pink with the sheen and silky texture of *C. reticulata*. 'Edwin Folk' promises to be one of the very finest reds for color, clear bright red with a glow. The flower is semi-double of good size. 'Dessa Thompson' is a pure white counterpart of 'Debutante.'

Several fine seedlings from 'Lotus' are now or soon will be available. 'Masterpiece' is a large formal white of real perfection. The foliage is exceptionally large, a vigorous grower, but it may prove to be a shy bloomer. 'Bride's Bouquet' is a semi-double white, large and very like 'Lotus.' 'Frosty Morn' is another very beautiful white seedling from this same seed parent.

'Elegans,' too, has furnished the seed parent for some very fine varieties. 'Sunset Glory' is a coral-colored variety in size and form like 'Elegans.' 'Pink Cloud' is a very lovely pale pink, large with wonderful depth to the flower.

'Frank Gibson' has an inherent something that makes one want it and hope that wherever grown it will retain the same large size, satiny texture and creamy stamens and petaloids. It has an instant appeal.

New camellias, their number is legion. Many fine old varieties will never be superseded but there is definite improvement in many and there are those which are still in the unnamed state, to be released later, which have even more promise.

It is a fascinating, endless chain, this "new" in camellias.

Writings in the *Arboretum Bulletin* by Else M. Frye

Some Ferns and Their Uses....September 1942
Introduction to Rhododendrons....March 1943
Blooming Sequence of Some Rhododendron Species in 1943 .....March 1944
An Old-Time Walk.....June 1944
Gaultheria and Pernettya.....September 1944
Old Mistakes.....September 1945
Journey to Royston.....Winter 1945
The Genus Pernettya.....Fall 1946
Groundcovers.....Fall 1947
I Dreamed a Garden.....Spring 1950
And Finally—.....Fall 1950
Advice to Young Gardeners from an Old Hand.....Spring 1952
Report on Gray-Leaved Plants....Winter 1953
You Can Grow it from a Cutting.....Summer 1953
Winter Aspects — January, 1955..Spring 1956
Introduction to Ferns—Part 1..Summer 1956
Ferns for Our Gardens—Part 2.....Fall 1956
Strictly Personal.....Winter 1960

Writings by Helen G. Buzard

A Peek Into Pandora's Jewel Box — 1954.....Spring 1954
May I Present the Camellias, Grand Troupers.....Spring 1955
Presto, Chango!.....Winter 1956

Arboretum Plant Collections*

III – BIRCHES (*Betula* L. 1753)

albo-sinensis Burkill var.
septentrionalis Schneider (1916) W. China
Skinner Nursery, Dropmore, Manitoba, Canada (1958; Pl.)
Ed. Scanlon & Assoc., Ohio (1959; Pl.)
Inst. Bot. Alpine du Lautaret, France (1961; Pl.)
Related to the Himalayan *B. utilis,* this birch is represented only by western Chinese variety in the Arboretum's collections. It is described as having beautifully marked orange-brown to orange-gray trunks. Our specimens have not yet reached a size where the bark is conspicuous. Ht. 6-8 ft.
Ceanothus collection; near Boyer, E. side of Lake Washington Blvd.

alleghaniensis Britton (1904)
(*B. lutea* Michx.) E. & C No. Am.
Yellow birch
Leschi Park, Seattle (1950; seeds)
Col. Greeley Forest Nursery, Nisqually, Wash. (1960; Pl.)
Large tree reaching perhaps 100 feet with yellowish-brown, exfoliating bark. We have no records on our largest tree, about 40 ft. tall. It is growing along Lake Washington Blvd. south of the stone cottage. The others were planted out 3/54 and 12/54. Ht. 17-21 ft. (1954 Pl.) (fig. 19).
South end Azalea Way

chinensis Maxim. (1879) N.E. Asia, N. China
Rochester Parks, New York (1951; Sd.)
A shrubby species with relatively large leaves, our specimens have not fruited as yet, nor may they be considered as thriving. Planted 3/58 on the east bank of Azalea Way and 12/59 at the N. end of Foster's Island. Ht. 3½-4 ft.

coerulea-grandis Blanchard (1904) N.E. No. Am.
Blanchard's birch
Montreal Bot. Gdn. (1951; Sd.)
A tree to 30 or more feet with a close gray-white bark and rather narrow erect head. It is related to the paperbirch of North America and to *Betula Platyphylla* of eastern Asia although a smaller tree than either. Its foliage is described as bluish-green but this isn't especially evident in our specimens. Planted 3/54 in collection, mid-section of Azalea Way; 3/55 south of the cottage; 5/55 at south end of Azalea Way. Ht. 22-28 ft.

Ermanii Chamisso (1831) N.E. Asia, Japan
Erman's birch
Royal Botanic Garden, Kew, England (1945; Sd.)
Botanic Garden, Moscow, U.S.S.R. (1955; Sd.)
A tallish birch, to 60 feet in its native lands, with large handsome foliage. The bark is a warm gray which may become white as the trees mature. Trees planted on Foster's Island are now fruiting. Ht. 20-24 ft. (1945 Pl.) (fig. 18).
Foster's Island; E. side Lake Wash. Blvd.

Var. **subcordata** (Reg.) Koidz (1913)
Royal Botanic Garden, Kew, England (1941; Sd.)
Very similar to the above except the leaves are often more heart-shaped and the branches less glandular. Our plant has not done as well as the type and was moved from Foster's Island to the collection on Azalea Way in 1955. Ht. 17 ft.

fruticosa Pallas (1776) N.E. and Central Asia
Shrubby birch
Royal Botanic Garden, Kew, England (1945; Sd.)
This shrubby species was received as *B. humilis* but proved to be misnamed, a not uncommon occurrence with birches raised from seed. It has rather open habit with slender erect branches. Our specimens seem to be subject to severe infestation of scale. Ht. 14 ft.
Foster's Island.

glandulosa Michx. (1803) N. America
Arboretum, Kornik, Poland (1952; Sd.)
Received as var. **groenlandica,** a name for which we are unable to find any authority. Planted on Foster's Island, they are now 10-11 ft. tall, open shrubs of little ornamental value.

globispica Shirai (1894) C. Japan
Botanic Garden, Nikko, Japan (1950; Sd.)
This is reported to be a tree in Japan where it may be 60 ft. or taller. Plants raised here from Japanese seed all seem to be shrub-like at the end of twelve years, but in other characters appear to fit. The leaf is more round than in many birches, with an acuminate tip, and the fruit is nearly globose instead of cylindric. Our plants fruited in 1955 but have not done so since. Ht. 3-9 ft.
Azalea Way collection; W. of honeysuckle collection

Jacquemontii Spach (1841) W. Himalayas
Royal Botanic Garden, Kew, England (1950; Sd.)
Related to *Betula utilis,* this species has been one of the best performers in the birch collection. It is a tall, narrow crowned tree probably reaching an ultimate height of 50 or 60 feet, with leaves turning a golden yellow in the fall. The bark is said to be white but on our trees it is rich copper-colored, peeling to show a pinkish-gray underlayer. Ht. 31-36 ft. (fig. 18).
Azalea Way collection

Medwediewii Regel (1887) Transcaucasia
Hillier & Sons, Winchester, England (1949; Sd.)
It is interesting to see the differences in opinion among the authorities as to whether this birch is a tree or shrub. Authors describe it variously as "—a tree of goodly height—"; "tall tree—"; "small alder-like stiff shrub (in the juvenile stage), in its home also a tree to 60 ft.—"; "—it forms a hemispherical bush about 12 ft. high." Our specimens are definitely shrubby with stiff branches arising from a central crown and forming a basket-like plant 2 to 5 ft. high. The large leaves are more like an alder than a birch. Despite the fact that it is subalpine in distribution, it has not been entirely hardy with us, and was cut back by the 1955 freeze.
Azalea Way collection

*The third in the series; for Maples see Fall and Winter 1958; Magnolias, Fall and Winter, 1959.

nana L. (1753) Circumboreal
W. E. Bogard, Bremerton, Washington (1961; Pl.)
George Schenk, Bothell (1959; Pl.)
A very charming rock garden subject with low, wide spreading habit and tiny leaves, this native of the northern latitudes is rarely more than a foot high but may cover several square feet of ground.
Rock Garden

nigra L. (1753) Mass. to Fla., W. to Minn. & Kan.
Riverbirch, red birch
Finch Arboretum, Spokane, Washington (1952; Pl.)
A most interesting tree, related to the yellow birch but with a lovely, soft red-brown bark exfoliating in great ragged flakes. It is fond of moist locations and our specimen, growing by the stream which drains the Japanese Garden, is now 20 ft. tall.
S. end of Azalea Way

papyrifera Marshall (1875) Northern No. America
Canoe birch, paper birch
Dominion Arboretum, Ottawa, Canada (1941; Sd.)
This is the most common American birch and well known for its beauty of trunk. As a young tree it has a columnar habit but tends to be wide spreading with maturity, a trait perhaps not confined to trees. Ht. 33 ft.
Foster's Island

var. **commutata** (Regel) Fern. (1945)
(Var. *occidentalis* (Hook.) Sarg., in part)
N.W. No. America
Western paper birch
C. S. English, Jr., Seattle (1950; Sd.)
Rancho Santa Ana Botanic Garden, Claremont, California (1957; Sd.)
This is our native variety of the paper birch, commonly seen north of Everett, Wash. The young trunks have a shining copper sheen to them that changes to white with maturity. The leaves are much larger than the European white birches and have a distinctive heart shape. Ht. 22-24 ft.
Foster's Island; S. end of Azalea Way

pendula Roth. (1788) Eu., Asia Minor
European birch
N. Y. Botanic Garden (1945; Sd.)
It is too bad that the European birch is the most commonly cultivated species in the Seattle area, particularly the cut-leaf form, f. *dalecarlica*, rather than one of the native American species. It is a lovely tree nevertheless, with a weeping crown and chalky white bark, striated and checked black with age. Many of our birches raised from seed from European Botanic Gardens have been hybrids of this or the related *B. pubescens*. Ht. 36 ft.
Foster's Island

'Fastigiata'
Ed. Scanlon & Assoc., Ohio (1956; Pl.)
Prentice Nursery, Seattle (1957; Pl.)
A columnar form of the European birch which gives promise of being useful where a very narrow crowned specimen is wanted. Ht. 17-21 ft.
S. end of Azalea Way; S.W. of Foster's Island

'Purpurea'
Purple birch
Malmo Nursery, Seattle (1952; Pl.)
A slow growing form with purplish foliage. The color persists until shortly before the leaves fall. Ht. 17 ft.
S. end of Azalea Way

Below
1. *Betula alleghaniensis.* 2. *B. Jacquemontii.* 3. *B. Ermanii.*

FIG. 18 PHOTO BY: WM. ENG

'Youngii'
Weeping birch
Bonnell Nursery, Renton (1954; Pl.)
Said to be the best of the weeping birches, this form has the habit seen in the weeping spring cherries, but is somewhat more graceful as a young tree. Our tree was planted in Arbor Day ceremonies, 1954. Ht. 9 ft.
S. end of Azalea Way

platyphylla Sukatchev var. **japonica**
(Miq.) Hara (1937) Japan, N. China
Royal Botanic Garden, Edinburgh, Scotland (1945; Sd.)
Morton Arboretum, Lisle, Illinois (1946; Sd.)
Betula platyphylla is the N. E. Asian counterpart of *B. pendula*. It differs from the European species in having larger leaves, pubescent beneath, and in other minor botanical characters. We do not seem to have the type tree growing in the arboretum, but rather two of its varieties. The var. **japonica** is very similar to the European birch in habit, but may keep its bark shining white a bit longer before dark fissures appear. Ht. 30-36 ft.
Foster's Island; S. end of Azalea Way

var. **szechuanica** (Schneid.)
Rehder (1939) W. China
Royal Botanic Garden, Edinburgh, Scotland (1945; Sd.), (1947; Sd.)
Botanic Garden, Copenhagen, Denmark (1955; Sd.)
This western Chinese form of *B. platyphylla* is among the finest of our white-stemmed birches for purity of color. Its trunk is a brilliant silvery-white and is quite outstanding. Seedlings raised from the original plants seem to retain this character. Ht. (of original trees) 23 ft; (of seedlings) 9-20 ft.
Foster's Island; S. of stone cottage; Woodland Garden

populifolia Marshall (1785) N.E. No. America
Gray birch
Botanic Garden, Smith College, Mass. (1941; Sd.)
Though the gray birch is considered a weed tree in the east, with us it seems to possess some merit. It is a small tree, less than forty feet, with a narrow crown and warm gray bark. It might be considered for small gardens. Ht. 17-20 ft.
Foster's Island

pubescens Ehrhart (1793) N. & C. Eu. to Siberia
Royal Botanic Garden, Edinburgh, Scotland (1945; Sd.)
This species is Europe's most northerly tree and grows in northern Sweden, Finland and Russia. We find it appearing under many names among the birches grown from seeds received from European Botanic Gardens. Because of this, *B. pendula* and *B. pubescens* (and their hybrids) are probably the most common birches in the Arboretum. Ht. 38 ft.
Foster's Island

Raddeana Trautv. (1887) Caucasus
Botanic Garden, Leningrad (1956; Sd.)
This is a relative of *B. nigra*, and one which has not been planted out long enough to rate properly. Ht. 6-8 ft.
E. of Boyer on E. side of Lake Wash. Blvd.

utilis D. Don (1825) Himalaya
Himalayan birch
Mrs. A. S. U. Berry, Portland, Oregon (1955; Sd. coll. by Stainton, Sykes, & Williams, #4382, Nepal)
O. Polunin, Godalming, England (1956; Sd. coll. Kashmir, P. 125)
By all reports Himalayan birches are very handsome trees, with orange-brown to creamy-white trunks. We have trees now from two sources of collected seed and may expect to find some differences among them. Ht. 4-8 ft.
Azalea Way Birch Collection, E. of Lake Wash. Blvd. near Boyer Ave.

In addition to the above species, the following are growing in our lath house, frames or nursery:

grossa Siebold & Zuccarini (1845) Japan
Japanese cherry birch
Kobe Arboretum, Kobe, Japan (1959; Sd.)

humilis Schrank (1789) Eu., N. Asia
Inst. Bot. Alpine du Lautaret, France (1961; Pl., coll. in Alps)

lenta L. (1753) N.E. U.S.A.
Cherry birch
Botanic Garden, Smith College, Mass. (1960; Sd.)

luminifera H. Winkler (1904) C. & W. China
Hillier & Sons Nursery, England (1962 Pl.)
Even in the frames the large leaves of this species are conspicuous.

pamirica Litv. (1914) Tadjikistan, U.S.S.R.
Inst. Bot. Alpine du Lautaret, France (1959); Pl. raised from seed collected in Pamir, So. Cent. U.S.S.R.

J. A. Witt

Below
Betula alleghaniensis fruiting in Arboretum.
Fig. 19 Photo by: Don Normark

Hoyt Arboretum Storm Damage

Ernest E. Fischer*

THE "big blow" on Columbus Day left the Hoyt Arboretum in Portland, Oregon, damaged in varying degrees. The hundreds of towering firs and hemlocks which were either uprooted or broken off by the tornado-like winds accounted for most of the damage and destruction of the planted specimen trees. Scores of dogwoods, cascaras and madronas were also victims of the wild winds.

The gymnosperm or needle area which lies west of Fairview Boulevard was not damaged to any great extent, being partially protected by an adjoining ridge. A survey recently completed shows a total of 53 specimens destroyed in this particular area. These trees varied in height from 2 to 60 feet. Of this number, 24 were broken off, 24 were demolished by falling trees and 5 were uprooted. Planted trees lost in this area included pines, yews, redwoods, incense cedars, true firs, spruces, hemlocks, junipers, larches and plum yews.

Sections of the angiosperm or deciduous area lying east of Fairview Boulevard suffered in varying degrees—ranging all the way from 70 per cent destruction to other areas not badly damaged. The section lying north and west of the Washington Park-Zoo road was the hardest hit and it will be some time before a true inventory of destroyed specimen trees can be taken, for scores of the latter are buried beneath a maze of fallen Douglas firs. This section contains our collections of maples, hawthorns, euonymus, smoke trees, mountain ashes, dogwoods, sourwoods, angelica trees, redbuds, sumacs and various flowering plum and cherry trees. A preliminary survey shows hundreds of trees lost in this area.

Our largest Douglas fir, an old-growth giant along the service road to Burnside Street fell a victim of the storm. However, a huge "wolf tree" nearby survived, as did the large yew in the same vicinity.

The primitive area, consisting of a dense stand of second growth fir, was hard hit and will probably be logged in the near future. This will give the arboretum an area with a much needed southern exposure.

Our magnolia area with its large collection of trees sponsored by the Men's Garden Club of Portland was spared from any destruction or damage. However, to the north the tulip trees are a sorry sight.

Straightening the planted trees has been under way ever since the storm. The larger trees are being raised by use of the jeep and guyed to nearby standing firs. The smaller specimen trees have mostly been staked. Those planted trees which are still salvageable in the heavily damaged deciduous area will have to wait to be straightened out until the fallen firs in that area are removed.

In addition to logging the key areas and straightening the fallen specimen trees, the arboretum staff is attempting to clear the primary trails so that the tree-conscious public can again use the miles of woodsy trails for hiking, as well as for studying the largest collection of distinct species of needle trees in the nation.

UNIVERSITY OF CALIFORNIA
Botanical Garden
Berkeley 4, California

November 1, 1962

Mr. Brian O. Mulligan
Director, Univ. of Wash. Arboretum
Seattle 5, Washington

Dear Mr. Mulligan:

We have had enough time now to make our first inventory of losses following the

*Mr. Fischer is Curator of the Hoyt Arboretum, Portland, Oregon

storm of October 11, 12 and 13. The peak of this storm came on the 13th, when Strawberry Creek became a raging torrent after fifteen inches of rain in the three days. We suffered the worst damage in the Garden's history in all of the areas bordering the flow of the creek, which runs through the center of the garden. The decorative rock work around the pool in the East Asiatic area (including the Rhododendron Dell) was carried away, and tree trunks, boulders and gravel jammed into what was once the pool, filling it to a depth of over eight feet.

Below the pool the stream undermined banks and caused cave-ins right down through the East Asiatic area and, also, through the Californian native area. Finally, the protective fence which keeps us from being invaded by deer was carried away from the lower end of the garden.

We estimate that the repair work to these areas, together with remedial work on gullying through the experimental areas will cost between five and ten thousand dollars. The losses to plants are inestimable. In addition to research material which was lost, we lost representatives of 51 genera, excluding ferns, and of these 17 were genera of woody plants. For example, 16 taxa of rhododendron were lost; 64 specimens in this genus disappeared in the torrent. Including herbaceous material, we lost from the East Asiatic and Californian areas some 488 plants, again excluding ferns.

We do not know what damage was done to the native plants which had been sown only recently before the deluge hit us. Fortunately, however, the African and New World succulent plants were not seriously affected. They did have their troubles last year when we had two nights of severe frost.

We shall recover from this, but it will be a long time before the garden can hope to look as attractive as it did before the flood.

Best wishes.

Sincerely,

H. G. Baker
Professor of Botany
Director of the Botanical Garden

The Wind Storm of October 12, 1962

THE date of October 12, 1962, will be remembered for a long time in Pacific coastal areas, since it brought us one of the most severe storms of this century, perhaps since 1875.

It was especially damaging and of high intensity in northern California and throughout western Oregon, as will be appreciated from the reports from Berkeley, California, and Portland, Oregon. Likewise heavy damage was inflicted on the fine stand of Douglas firs and other native trees in Stanley Park, Vancouver, B. C., where the road to the Lions Gate bridge was blocked by fallen trees.

In Seattle, although many trees were blown down or snapped off, it would appear that their number was fewer and the damage less severe than in those other areas and cities. This may have been due in part to the protection given by the Olympic mountains, forty miles to the west, although for much of the period the wind blew from the south or southeast. Rainfall at the same time amounted to only .11 in. in the city.

In the Arboretum thirteen trees were blown down or broken off at varying heights. Most of them were native maples *(Acer macrophyllum)*, western red cedars *(Thuja plicata)* or hemlocks *(Tsuga heterophylla)*, and usually showed decay in the trunk.

One of the *Thuja* trees fell on a young magnolia and broke off the whole upper part; another dropped into a group of *Rhododendron* 'Azor' and smashed one plant to pieces. Several *Robinia* trees were badly damaged, the worst being the pink flowered hybrid 'Idahoensis, planted 1950, 34 ft. tall, which was snapped off two feet above the ground.

In the Seattle city parks some 200 trees were destroyed, many of them completely uprooted; they included many different species, amongst them some native cottonwoods *(Populus trichocarpa* which stood up surprisingly well in the Arboretum.

In the remarkable avenue of chestnuts *(Castanea* hybrids) on Queen Anne hill eight trees were badly broken and had to be stubbed back, but they should eventually form new heads. A long and tedious cleaning up job remains to be done on many more trees damaged in varying degrees. On the whole, however, we can consider ourselves fortunate in comparison with other areas and cities.

B.O.M.

Above

Stranvaesia Davidiana drawn by Mareen (Mrs. Arthur) Kruckeberg.

FIG. 20

Some of Our Favorites☆ ☆Won't You Send Us Yours?

STRANVAESIA DAVIDIANA

One of the shrubs we chose for the upper end of our rockery was *Stranvaesia Davidiana.* This, along with *Elaeagnus, Ceanothus, Euonymus, Rhus* and *Photinia* make, an impressive background for the rockery and a good screen from the street. These taller shrubs all thrive on the dryish S.E. slope of the rockery, and several of them provide good fall color, including the *Stranvaesia.* It is semi-evergreen here, and some of its leaves turn a brilliant red in fall, the others remaining a lustrous green.

It is a rather stiff upright shrub, up to 20 ft., but its gracefulness comes from the long narrow pointed leaves and small drooping branches with their sparsely spaced orange-red berries, which persist through the winter and make an interesting change from holly berries for Christmas decorations (Fig. 20).

Stranvaesia belongs to the Rose family and is closely related to *Cotoneaster, Photinia* and *Sorbus.* The generic name is a quaint latinization of an English botanist's surname, Wm. T. H. Fox-Strangways, and the specific name honors one of France's best known missionary botanists, the Abbé Armand David. The abbé studied plants and birds in China, collecting there from 1862 to 1874.

MAREEN KRUCKEBERG

We have deviated from our usual size type in this instance in order to bring you Mrs. Kruckeberg's beautiful drawing in full size as it came to us.

Growth Records of Some Young Trees at the University of Washington Arboretum

J. A. Witt

THE following represents a compilation of tree height measurements started in 1954. Its purpose is to show the rate of growth of a selected group of trees under more or less similar conditions and, while it would be unfair to use the growth figures as absolute, they do represent certain trends. One cannot say on the evidence of these measurements that the red veined maple is going to be larger than the paper barked maple, but one may safely assume that the red veined maple will grow much faster than its paper barked relative.

The early measurements were made with a twenty-foot pole marked in foot intervals, as were those taken in 1962 for all trees under twenty feet tall. A Suunto clinometer was used for taller specimens after March, 1962. This instrument is a hand-held angle measuring device which converts directly into units of heights. It is surprisingly accurate after the operator has had a little practice with it.

About half the heights recorded represent the average of two or more trees that were planted at the same time and in the same location, the remainder are of selected single specimens.

Of the 101 kinds of trees listed, eighty-two are species, varieties or hybrids of various origins; the remaining nineteen are horticultural clones.

The following are among the fastest growing trees in the Arboretum:

Acer rufinerve	14 ft. in 7 years
Alnus cordata	18 ft. in 7 years
Chamaecyparis Lawsoniana 'Glauca'	8 ft. in 4 years
Cornus Nuttallii	9 ft. in 4 years
Gleditsia triacanthos 'Moraine'	16 ft. in 8 years
Metasequoia glyptostroboides	18 ft. in 6 years
Nothofagus Dombeyi	20 ft. in 8 years
Pinus sylvestris	12 ft. in 4 years
Salix alba 'Tristis'	18 ft. in 6 years

Of equal importance are those trees which are slow growing. The following selections grew a foot or less a year:

Acer griseum	6 ft. in 7 years
Cercis chinensis	4 ft. in 7 years
Davidia involucrata	4 ft. in 7 years
Franklinia alatamaha	5 ft. in 8 years
Ilex Aquipernyi	7 ft. in 8 years
Pinus aristata	1 ft. in 4 years
Tsuga Mertensiana	7 ft. in 8 years
Stuartia ovata	4 ft. in 8 years
Styrax Obassia	5 ft. in 8 years

Growth of Trees at the University of Washington Arboretum, Seattle

Species	Date Planted	Height in Feet 1954	1955	1958	1962
*Acer capillipes	4/51	12	....	21	23.5
*— cissifolium	4/53;2/55	....	10	14	15
*— Davidii David's maple	4/53	...	8.5	14	17.5
*— Davidii	12/49	14	....	20	23.5
*— griseum Paperbark maple	12/54	....	4	8	10.5
— griseum	12/54	....	4.5	8	13
*— Grosseri var. Hersii Hers' maple	4/53	....	8.5	13	15
*— Oliverianum	4/53	....	7.5	9	13
— platanoides 'Crimson King' Crimson King maple	3/52	....	....	11	16
— platanoides 'Erectum' Erect Norway maple	2/51	....	....	17	22
— rubrum 'Columnare' Columnar red maple	3/52	....	....	11	16.5
*— rufinerve hybrid Redvein maple hybrid	2/54	....	9	13	23
— saccharum Sugar maple	12/52	....	....	13	20
— tegmentosum	4/53	....	10.7	14	15
Albizzia Julibrissin var. rosea Hardy silk tree	8/49	9	10	16.5	21

Species	Date Planted	Height in Feet 1954	1955	1958	1962
Alnus cordata	3/51	....	18.5	28	36
Italian alder					
*— glutinosa	11/47	....	19	24	26.5
European alder					
*— japonica	11/47	....	22	27.5	35.5
Japanese alder					
*Amelanchier X grandiflora	4/53	....	9	13	18
*Betula Ermanii	11/47	....	16	20	22
*— Maximowicziana	11/50	....	12	17	21
*Betula papyrifera var. commutata	11/51	....	13.5	19	24
Western paper birch					
— pendula 'Fastigiata'	4/57	....	....	11	21
Weeping white birch					
*— platyphylla var. szechuanica	11/47	....	21	23.5	23
Carpinus Betulus 'Fastigiata'	12/56	....	....	7.5	14
Erect European hornbeam					
— caroliniana var. virginiana	1/52	....	4	10.5	12.5
American hornbeam					
— Turczaninowii	4/50	....	9	12	14
*Cercidiphyllum magnificum	12/48	14	17	22	25
Katsura tree					
*Cercis chinensis	2/53	....	6.5	9	11
Chinese redbud					
Chamaecyparis Lawsoniana 'Glauca'	4/56	....	....	8.5	16
Blue Lawson's cypress					
— nootkatensis	3/57	....	....	5	9
Alaska cedar					
Cornus Nuttallii (grafted plts.)	11/49	14	....	18	27
Pacific Dogwood					
Crataegus monogyna 'Stricta'	4/56	....	....	9.5	13.5
Cupressocyparis Leylandii	12/52	6-7	9	15	25
Cupressus arizonica form	11/57	....	....	6.5	17
Arizona cypress					
*Davidia involucrata	12/51	....	6.5	4.5‡	9.5
Dove tree					
*— involucrata	1953	....	6.5	8‡	11
Fagus sylvatica 'Laciniata'	11/49	9	....	16	20
Cutleaf European beech					
— sylvatica 'Rohanii'	2/50	9	....	14.5	19
Rohan European beach					
Franklinia alatamaha	Spring 1949	12	....	14	17
Franklin tree					
Gleditsia triacanthos 'Moraine'	11/49	11.5x13	11.5x13	18.5x20	22x29
Moraine Locust					
Halesia carolina	Spring 1947	....	23	26.5	30
Carolina silverbell					
Hamamelis japonica var. arborea	11/49	10x12	....	14x21	23x26
Japanese witch hazel					
Ilex altaclarensis 'Camelliaefolia'	1948	....	9.5	12.5	17
Camellialeaf English holly					
— Aquifolium 'Angustifolia'	1948	....	7.5	10.5	14
Narrow leaf English holly					
— Aquipernyi	10/49	6	7	11	13.5
— chinensis	3/48	8	10	13	18
*— Fargesii hybrid	4/54	....	5.5	7.5	9.5
— integra	3/49	....	9	11	11
— pedunculosa	3/49	8	9.5	15	17.5
Longstalk holly					
— Perado var. platyphylla	11/52	....	7	4‡	7.5
*Laburnum alpinum	3/50	10	13	15	17.5
Scotch laburnum					
Liriodendron tulipifera	4/57	....	....	11	21
Tulip tree					
*Maackia amurensis var. Buergeri	5/48	9	12	15.5	16
— chinensis	5/48	9.5	12	11.5	21
*Magnolia acuminata	11/46	17	18	23.5	29.5
Cucumber tree					
*— Fraseri	4/48	17	19	24.5	28
Fraser's magnolia					
*— Kobus	3/48	12	14	23	26
— — var. borealis	1947	21	....	31	32
— obovata	11/48	10	....	18	23
Whiteleaf magnolia					

Species	Date Planted	Height in Feet 1954	1955	1958	1962
— X Proctoriana	4/51	....	9.5	12	15.5
— salicifolia	4/48	10	11.5	13.5	18
Willowleaf magnolia					
— Sargentiana var. robusta	2/54	....	4.5	5.5	12
— virginiana	1947	9	11.5	13	14
Sweet bay					
Magnolia virginiana X grandiflora (F2)	4/53	....	7.5	9.5‡	14
Malus 'Dolgo'	12/57	....	....	6	12
Dolgo crabapple					
— 'Frau Luise Dittmann'	3/55	....	....	14.5	18
— X Hartwigii	3/55	....	....	9.5	13.5
— ioensis seedling	4/56	....	....	12	20
— X magdeburgensis	4/56	....	....	10.5	13
— 'Wabiskaw'	2/57	....	....	12	20
*Metasequoia glyptostroboides	5/56		3′ (1956)	18.5	21.5
Dawn redwood					
*Nyssa sylvatica	3/53	....	....	11.5	18
Tupelo					
*Nothofagus Dombeyi	3/53	6	....	13.5‡	26
Dombey southern beech					
— obliqua	3/52	10	....	14	25.5
Oxydendrum arboreum	3/49	10	14	19	24
Sourwood					
Paulownia tomentosa 'Lilacina'	3/51	....	....	19	27
Pinus aristata	3/57	....	....	4	5
Bristlecone pine					
*— Armandii	11/47	11	....	17.5	21
*— Banksiana	11/47	17.5	....	23.5	31
Jack pine					
*— densiflora	11/47	13′ (lost leader)		14	21
Japanese red pine					
— Griffithii	3/57	....	....	7.5	12.5
Himalayan pine					
*— nigra var. cebennensis	4/48	12	15	14.5	21
Cevennes pine					
*— Pinaster	11/51	5	....	11	18.5
Cluster pine					
*— sylvestris var.	11/48	7.5	....	20	26.5
Silver scots pine					
*— virginiana	11/47	10	....	14	21.5
Scrub pine					
Prunus Davidiana	Spring 1950	15	....	21	22
David's peach					
*— Grayana	3/57	....	....	8	13
— X Hillieri	11/57	....	....	10	19
Hillier cherry					
*— mandshurica	2/51	8,10	13	16.5	18
Manchurian apricot					
— subhirtella var. rosea	3/49	22x30	....	22x30	23.5x41
Whitcomb cherry					
*Quercus macrocarpa	4/55	....	....	15	18
Bur oak					
†Robinia 'Idaho'	4/50	24	22	30	34
Idaho locust					
— Pseudoacacia 'Decaisneana'	5/48	32	....	36	46
Decaisne black locust					
— viscosa	3/50	20x16	18x16	17x22	20x26
Sticky locust					
Salix alba 'Tristis'	4/57	....	....	13	24
Weeping willow					
Stuartia ovata	Spring 1948	12	13.5	13	16
— pseudocamellia	3/48	18	21	22.5	25.5
— pseudocamellia var. koreana	3/51	10	12	15.5	21
Styrax Obassia	3/48	16	17	19	21
Fragrant styrax					
*Tilia platyphyllos	11/57	....	....	7.5	15.5
Bigleaf linden					
Tsuga Mertensiana	2/51	9.5	....	12	17
Mountain hemlock					
*— Sieboldii	3/49	9	11	9‡	17
Siebold's hemlock					

*Raised from seed at Arboretum ‡Frozen November 1955 †Destroyed by windstorm, 10/12/62

The Arboretum Bulletin

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To keep memberships in the Arboretum Foundation in good standing, dues should be paid during the month payable. Active memberships more than three months in arrears will be dropped and The Bulletin will be discontinued.

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The Arboretum Foundation,
University of Washington Arboretum
Seattle 5, Washington

I hereby apply for membership in the Arboretum Foundation and remittance for same is enclosed to cover dues for the next succeeding 12 months.

Name .....

Address .....

All memberships are non-assessable.

Our Arboretum

THIS coming year should be an important one to the Arboretum. To partly compensate the University for the loss of extensive acreage involved in the second Lake Washington bridge approaches, an award has been made, a portion of which will be available for the floral hall. In addition, the University plans to erect a new administration building with an auditorium and other facilities badly needed for the Arboretum operations. This will include quarters that will be available to the Arboretum Foundation staff, including facilities for the Unit Council and unit meetings. The plans are now being drawn and I hope that these two projects will be under way before the close of this year.

It is gratifying to note the recognition by both the University and the public at large of the importance of the Arboretum. Physical improvements of this character will greatly enhance the status of the Arboretum, both to our citizens and to the many who come from afar to visit the Arboretum.

I would like to ask each member of the Arboretum Foundation to assist in increasing our membership. The dues form the backbone of our resources and we should have a greatly increased membership if all of us will make an effort to sign up a member or two this year. The dues are nominal. The Bulletin alone is worth the lower membership fee, and I would like to recommend that prospective members who are able to take out a membership in a higher yearly fee category be encouraged to do so. You will be helping a very worthy cause if you will make this effort to increase our membership. Why not give one or more of your friends a year's membership in the Foundation? Make checks payable to the Arboretum Foundation so it will be deductible on your income tax return.

If any member of the Arboretum Foundation wishes to make suggestions for improving the usefulness both of the Arboretum and of the Foundation, their suggestions would be most welcome. A letter or telephone call to the Arboretum office is all that is necessary

and immediate attention will be given to any such suggestions.

With a fine Board of Directors, such as we have, I am confident that this coming year will prove a fruitful one.

DONALD G. GRAHAM, *President*
The Arboretum Foundation

Rare Plants Distributed To Other Arboreta

AT the end of October the Arboretum made up and sent out, to a limited number of other arboreta and botanical gardens in the U. S. and Canada, a list of fifteen different species of trees and shrubs of which we had some surplus plants.

These included three raised from seeds received here from the Botanical Garden at Buenos Aires, Argentina, in September 1961, *(Lomatia hirsuta, Nothofagus Dombeyi,* and *Schinus patagonicus),* one from Japan *(Ilex latifolia),* one from Portugal *(Ilex Perado),* and five from England or Scotland in 1960, *(Acer distylum, Clethra Delavayi, Cupressus funebris, Libocedrus chilensis* and *Nothofagus procera).*

Fifteen requests were received and have been dispatched, totalling 115 plants. Recipients included the U. S. National Arboretum, Washington, D.C., Brooklyn Botanic Garden, New York Botanical Garden, Longwood Gardens, Kennett Square, Pa., the Morris Arboretum in Philadelphia, Morton Arboretum, Lisle, Ill., Strybing Arboretum, San Francisco, Los Angeles State and County Arboretum, Arcadia, Calif., and the University of California Botanic Garden at Berkeley.

By making this distribution so wide in area we shall learn more about the hardiness, adaptability and horticultural value of these trees and shrubs in the different climates. Some of them, we may fairly confidently expect, will eventually mature into useful specimens and become sources of more new plants in due course.

B. O. M.

The BULLETIN is desirous of obtaining more detailed information about the behavior of some of the less commonly grown but horticulturally valuable trees and shrubs cultivated in the Puget Sound region, so that more may be learned about their apparent soil, climatic and other requirements, how large they grow here, how much cold or heat they will tolerate, and any other pertinent data.

We now propose asking for such information from readers who have grown the plants in question, which will be listed in succeeding issues, and then publishing extracts from replies. The first genera selected are *Eucryphia,* especially the deciduous species *E. glutinosa (E. pinnatifolia)* and the evergreen hybrid *E. nymansensis,* and *Embothrium,* the firebush, either *E. coccineum* or any of its varieties.

Both are found in Chile, growing in a region with a climate not dissimilar from our own, but with a few notable exceptions they are rarely seen in gardens around Seattle. Information from readers in other areas will also be welcome, especially if it sheds light on the needs and hardiness of these plants. This should in any case include the age, origin, size and present condition of the plant; information on the soil, aspect, shelter and drainage of the location, and the owner's views as to its success and value or otherwise.

Some Purchases with Donations in 1962

From:

Amateur Gardeners; five new camellia plants.

Evergreen Study Club; books *(Japanese Gardens; Shrub Roses of Today);* bulbs of daffodils and tulip species.

Lake Washington Garden Club, Unit No. 4; book, *The Best of Redoute's Roses.*

Arboretum Unit No. 8; seven books, including *Flowering Cherries of Japan, Revision of Berberis & Mahonia, Northern Rocky Mtn. Trees & Shrubs.*

Unit No. 27; Unifile slide cabinet.

Unit No. 33; books *(Weeds of the Pacific Northwest, Manual of the Higher Plants of Oregon,* 2nd edn.; *Some Good Garden Plants,* & *R.H.S. Rhododendron & Camellia Year Book, 1963).*

Unit No. 41; 6000 color post cards; four volumes of *Notes from the Royal Botanic Garden, Edinburgh* (1936-1958).

Unit No. 52; Dymo-mite tapewriter and tapes; book, *Rock Garden Plants of the Southern Alps.*

Unit No. 61; collection of *Crocus* species.

Unit No. 66; plants of kinnikinnick for Woodland Garden.

Else M. Frye

1884 - 1962

"The song is ended
but the melody lingers on."

THE love of gardening which Else M. Frye engendered in the lives of those about her will continue to create an ever widening circle of devotees who have a compelling urge to become acquainted with the finest treasures in horticulture and to learn how to increase them for fuller enjoyment. This will be the real memorial to Mrs. T. C. Frye, who died on October 14, 1962.

Else Anton began her life near Aalborg, Denmark, but she and her family left there when she was six years old, crossing the Atlantic by steamship, the United States by rail, and then across the Pacific by ship to the Sandwich Islands. Later they returned to the United States and settled in Seattle, which was always thereafter to be the hub of Else's activities even when attending normal school in Bellingham, teaching at Friday Harbor or Auburn, and, in later years, travelling to the southern United States and Mexico. It was at Friday Harbor in 1907 that she met Theodore C. Frye and in June 1908 they were married.

Mrs. Frye proved to be a true helpmate to her husband even to the extent of continuing her formal education, teaching extension courses and assisting him with the summer trips for botany students.

A visit to any of the several successive gardens created by Dr. and Mrs. Frye was a rare privilege. The plants alone could not have been so impressive, even though partaking of rarity and diversity, had there not been evidence of a master craftsman, a born gardener, who had planted the components into a landscape of infinite interest and beauty. Nor was the garden ever static. There were always changes to be effected "to make the plants happier."

Mrs. Frye's intense devotion to and interest in her family overflowed to include friends and friends of friends with whom she generously shared the fruits of her experience. The encouragement given to many novices resulted in a cult of avid gardeners who frequently quote Else Frye's unorthodox but sensible and terse bits of advice such as, "The time to make cuttings is whenever you can get them."

The organizational meeting of the Northwest Unit of the American Rock Garden Society was held in the Frye home. Mrs. Frye thereafter served the group in various capacities and sponsored educational and promotional activities for them. She was active in the Faculty Wives' Garden Club and was a charter member of Unit 2 of the Lake Washington Garden Club. In addition to these and other organizations her interests included music, collecting glass, various handcrafts, and reading prodigiously in diverse fields.

Else Frye's way with words left a treasury of writings. Many of them were first produced for *The Arboretum Bulletin* on whose editorial staff she served for many years. *The Garden Digest, Flower Grower, National Horticulture Magazine, Gardeners' Chronicle, New Flora and Silva* and *American Rock Garden Society Bulletin* are other publications in which her writings have appeared. She has left us a rich heritage of literature colored vividly by her personal preferences and opinions.

Our lives are richer for having known Else M. Frye.

F. K. R.

Helen G. Buzard

A DEDICATED friend of the University of Washington Arboretum is gone, leaving a gap it will be hard indeed to fill. Helen Buzard (Mrs. James A. Buzard) died on October 5, 1962 after an illness of over a year. Characteristically, she went about her work of reading and correcting garden copy for *Sunset* Magazine's Northwest edition until only a few weeks before her death. Few of her friends realized the seriousness of her illness, for she maintained her usual cheerful and helpful attitude until the end.

As a young woman, Helen Buzard studied botany at the University of Washington under the late Dr. T. C. Frye. Perhaps this was the official beginning of an enthusiasm

for plants and gardening which continued all her life.

Mrs. Buzard's major interest was in camellias. She and her husband began their collection with the purchase of a single plant in 1924. Before the freeze of November 1955 they were growing over 500 varieties of camellias on their Hunt's Point property near Bellevue. This collection is still one of the most extensive private plantings on the west coast.

For a number of years Mrs. Buzard filled her calendar each camellia blooming season with speaking engagements. Hundreds of garden club and Arboretum Unit members first learned about camellias at these talks, and were amazed at the tremendous color and variety of camellia blooms. She always illustrated her lectures with as many different kinds of camellias as her garden could produce, and this was usually several dozen. She was an authority on camellias in the Northwest, and gave generously of her knowledge.

Helen Buzard was a charter member of the Lake Washington Garden Club and also of the Frances MacBride Arboretum Unit, No. 41. She served on the Editorial Board of the ARBORETUM BULLETIN from 1955 through 1960, writing many book reviews for this publication as well as several articles on her special hobby, camellias.

From 1954 until 1959 Helen Buzard was responsible for many of the garden articles appearing in *Sunset* Magazine as well as the Garden Guide section. From 1959 until her death she read and corrected Northwest garden stories for *Sunset*. Her thorough knowledge in the field of horticulture, her willingness to help whenever asked, and her gentle understanding will not soon be forgotten.

NANCY DAVIDSON

This is your Arboretum, kept alive by your support

We are pleased to welcome the following new members (September 5 through December 13, 1962): *Sustaining* — Mrs. Philip L. Bardon, Ford Q. Elvidge, Mrs. Arthur T. Lee, N. W. Median Iris Society, Rosalma Garden Club. *Annual* — Mrs. G. C. Anderson, Mrs. Robert L. Anderson, Mrs. L. K. Andrews, Dr. and Mrs. W. E. Avery, Mrs. C. B. Bakker, Mrs George L. Batchelder, Mrs. G. L. Batchelder, Jr., Mrs. Reed Bement, Mrs. Kenneth H. Best, Mrs. G. Brooks Biddle, Mrs. Edward C. Biele, Mrs. W. L. Bishop, Jack Brown, Mrs. Donald C. Burnam, Mrs. C. C. Chambers, Mrs. E. G. Chuinard, Mrs. John H. Current, Mrs. Ralph M. Davis, Mrs. N. E. Dobbins, Mrs. Dennis M. Donohue, Mrs. John W. Earley, Mrs. Tom G. Feaster, George Fisher, Mrs. H. P. Forman, Mrs. J. R. Fribrock, Mrs. Wm. M. Gleason, Mrs. Robert Glein, Mrs. James P. Griffith, Mrs. Cliff Harrison, Mrs. Robert C. Hawkes, Mrs. Al E. Hazelquist, Mrs. C. A. Hermanson, Mrs. Glenn E. Hinton, Mrs. W. L. Hodgson, Mrs. Merrill Hyde, Mrs. Fordham L. Johnson, Mrs. Walfred Johnson, Mrs. Charles J. Keever, Mrs. David E. King, Paul H. Kurose, Mr. and Mrs. Berg Larsen, Mrs. W. A. Linklater, Mrs. Paul Lyon, Mrs. B. L. Malcolm, Mrs. Sumner Marcus, Mrs. M. B. Marsh, Mrs. M. A. McCaughey, Mrs. Richard N. McKinnon, Mrs. Erna Bert Nelson.

Mrs. William Newman, Mrs. Donald V. Normark, Mrs. Donald Olson, Mr. and Mrs. Clifford E. Opheim, Mrs. Regis Pelloux, Mrs. James B. Peterson, Mrs. Roy D. Pittman, Mrs. Forrest W. Price, Mrs. Robert V. Reeves, Mrs. G. A. Rice, Mrs. Harold D. Ritchie, Mrs. Roscoe Rodgers, Mrs. Merle Schenk, Mrs. Walter F. Schmitt, Mr. and Mrs. R. S. Seaton, Minot Simons II, Mrs. A. R. Stevens, Mrs. S. C. Strandberg, Mrs. Stan Strunk, Mrs. Harvey Suder, Raymond L. Swanson, Mrs. Collins N. Swope, Mrs. John Theodore, Charles A. H. Thomson, Mrs. Walter A. Walker, Mrs. John F. Warth, Mrs. Ralph J. Wedgwood.

We are also most grateful to the following members who have raised their dues to: *Contributing* — Mr. and Mrs. Page H. Ballard. *Sustaining* — Lawrence M. Duffy, Mrs. Louis H. Edmunds, Mrs. W. Byron Lane, Mrs. James H. Madison, Mrs. Moritz Milburn, Mrs. A. E. Montgomery, Mrs. Eugene A. Ruthford, Mr. and Mrs. G. J. Whyte.

Leaves from the Arboretum

RICHARD B. WALKER*

I. How are woody plants damaged by frost and how can they be protected against frost injury?

We always hope that the winter will be mild and thus free of frost injury to plants, but perhaps some thoughts on these matters may be worthwhile in case severe cold does strike. The perennial plants we grow outside must tolerate some frost, but those which are only semi-hardy may be damaged by temperatures only a few degrees below freezing. This damage is usually of two types:

(1) Mechanical injury, either from ice crystals which form in the cells of the softer tissues, or from contraction of tissues which may cause splitting in the bark or elsewhere;

(2) Desiccation of leaves and stems, caused by the evaporation of water from the aboveground parts during cold, dry weather in amounts greater than the roots absorb from the cold or frozen soil.

Protection of plants should take a form which will prevent or alleviate these two effects. Mechanical injuries can often be guarded against by covering the plant or its stem. Small trees or shrubs can be covered in entirety. This is best done by making a frame and covering it with polyethylene or other plastic sheeting which extends to the ground and is weighted down with soil. Such shelters should be left in place only during the cold period, to avoid "forcing" the plant into growth. Stems can be protected by wrapping with plastic, aluminum foil or other material.

Injury by desiccation can be prevented or lessened by any change which will slow evaporation. Shading is effective in this respect and it also lessens mechanical injury to cells caused by frozen tissue thawing too rapidly. Wrapping the plant in plastic or cloth is also helpful in this respect, but again these protective coatings should be removed at the end of the cold period. Plastic sprays are marketed which can be used to coat the entire shoot with a thin plastic film. These are fairly effective, but have the disadvantage that if they persist into the spring they may depress plant growth by reducing photosynthesis.

Mulches may delay or prevent freezing of the soil. This not only protects roots from freezing but allows more water absorption which is favorable to the proper maintenance of water in the leaves and stems.

II. When should "dormant spray" be applied?

Especially in the case of peach leaf curl, many gardeners in the Pacific Northwest delay the application of dormant sprays too long. Spores of the peach leaf curl fungus are on the outsides of the bud scales and may grow enough during mild winter weather to infect the bud. Once inside the bud control by spraying is ineffective.

Peach leaf curl and most other fungal as well as insect pests will be controlled by drenching the plants during December (no later) and a second time near the end of winter dormancy with a lime-sulfur spray made up by diluting one part of the concentrated liquid material with nine parts of water.

*The first of a new series of contributions from the Botany Department of the University, for which we are grateful to Dr. Walker and other members of the faculty.

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Advice to Young Gardeners from an Old Hand

(Continued from Page 98)

than doubled in a year's time by planting in peat only. A reasonably sized plant may be divided into two, three or four and the parts planted firmly in a frame of peat and it is little short of amazing how they increase in size.

In purchasing a plant, look well into the root system; it is the most important part of it. Next, if you wish an increase in numbers, examine the branching system. A branch well toward the base may be pinned to the ground and sand or peat moss heaped upon the point of contact; put a weight on top. Many people favor making a slight cut on the under side. In a year, or maybe two, roots will have formed and the new plant may be severed from the parent. Species and hybrid rhododendrons; deciduous magnolias; viburnums and almost any kind of shrub or tree can be increased by this means.

Many plants may be chopped into several parts by means of a sharp knife. In this category are the fall-blooming asters, Christmas roses, many ferns and other perennials.

In planning your garden, do not overlook your native vegetation. In many years of "tripping" over the west and southwest there have been few localities where I could not find something attractive. Since this is an attempt to show how a garden may grow without great expenditure, I am embarrassed to return to the subject of money. But trees, trees that lend so much grace and permanence in a garden as well as accent, should warrant some sacrifice. In this matter consider well how many or how few may be accommodated when mature; refuse any that will eventually grow entirely out of scale and dwarf house and grounds. In deciduous trees the branching pattern is very important and beautiful foliage always offers as much as lovely flowers.

We have always saved every weed and leaf for compost and that has reduced very much the amount of fertilizer that was necessary. For many years this has been kept in bins but a pile may be laid up on open ground or less conveniently dropped in a pit. With this we have an open frame in which the sifted compost is spread and well watered. Several crops of weeds are hoed or raked before it is used. This has saved a lot of work.

To keep seeds over winter, wrap each kind in waxed paper and roll all in an oiled cloth and keep in the refrigerator till needed.

And now, good luck and cheerio!

Each year near Christmas in the Arboretum we have made a tradition of listing plants flowering at that time. These lists in the past years have ranged from over thirty species and cultivars to less than half a dozen, depending of course, on the weather in early winter. This Christmas season has been better than average for flowering plants; the autumn cherry, *Prunus subhirtella* 'Autumnalis' was perhaps the best ever for mid-December. Below is a list of some of the trees and shrubs flowering December 20, 1962:

Arctostaphylos species & clones (5) ..... manzanita
Arbutus Unedo ..... strawberry tree
Camellia sasanqua clones (5)
Ceanothus species and clones ..... California lilac
Colletia armata ..... armed colletia
Chimonanthus praecox ..... wintersweet
Daphne Mezereum 'Alba' ..... white February Daphne
Erica carnea 'King George'
Erica ciliaris ..... fringed heath
Helleborus argutifolius ..... corsican hellebore
Hamamelis mollis ..... Chinese witch hazel
Hypericum 'Rowallane hybrid'
Lithospermum diffusion 'Heavenly Blue'
Prunus subhirtella 'Autumnalis' ..... autumn cherry
Rhododendron Kaempferi Japanese hill azalea
Rhododendron clones
Ulex europaeus ..... Gorse
Ulex Gallii
Virburnum bodnantense 'Dawn'
Viburnum fragrans
Viburnum fragrans 'Candidissimum'
Viburnum Tinus ..... laurustinus

BOOK REVIEWS

Sakura; Flowering Cherries of Japan, by Toemon Sano. Published by Mitsumura Suiko Shoin, Kyoto & Tokyo, Japan, (April 1961). Price $75.00.

SINCE the publication of M. Miyoshi's *Japanische Bergkirschen,* in 1916, there has not been generally available. to western students at least so far as this reviewer is aware, an authentic, illustrated work describing and depicting the large number of garden forms of cherries native to Japan. The need is now most adequately filled by this large and beautiful work, quite evidently a labor of love on the part of the author, who inherited, cared for and increased an already extensive collection, and by the two artists who painted the original pictures of these beautiful flowers—Koha Horii and Komatsu Haruo.

The book opens with eight photographic plates of high quality,—four in color, four in monochrome—of cherry trees flowering in the parks and temple gardens of Kyoto. Following forewords by five Japanese and one American (Dr. Wm. S. Stewart, Director of the Los Angeles State and County Arboretum), a preface by the author printed both in Japanese and in English, the main part of the volume is occupied by 101 color plates representing some 75 named clones, chiefly derived from *Prunus Lannesiana* Wilson, or as usually recognized in the United States and Great Britain, *P. serrulata* Lindley.

'Yamazakura' (*P. serrulata* var. *spontanea* (Maxim.) Wilson) is depicted in various forms, some very charming, such as no. 10 with large single pink flowers, and no. 31, semi-double, flushed pale pink in bud, becoming white. Likewise *P. subhirtella* and the weeping variety, here recognized as *P. pendula* Maxim. 'Somei-Yoshino' (nos. 11 & 12), a form of *P. yedoensis,* very much resembles the plant grown on the west coast as 'Akebono'; no doubt when it is possible to compare living specimens with these carefully drawn and colored plates we shall find other occasions to revise the nomenclature of our trees.

Some names used in Pacific coast gardens and nurseries do not appear; for examples, 'Hisakura', 'Horinji', Ojochin', and 'Shiro-fugen', although descriptions of them are to be found in the monograph of E. H. Wilson (1916) or in C. Ingram's *Ornamental Cherries* (1948). We would have welcomed the opportunity to see authentic paintings of these also.

The reproductions, which are fastened to a blank page (on the right side when opened), measure approximately 6 x 7 ins., 7 x 8 ins., or 7 x 10 ins. On the lower left quarter of the facing page is a very brief description, in Japanese and English, of the essential botanical characters of the tree shown,—the habit, bark, young leaves, flower details, season, fragrance, fertility,—with the Japanese and Latin names and synonyms, authors and references. The drawings for the most part are clear and detailed though a few (nos. 19, 79, 89) are less distinct, especially in the petal outlines; the coloring, whether of twigs, young leaves or flower parts has evidently been executed with great care and skill, so that one feels that forms new to the viewer could well be identified by their portraits. The development and coloring of the young foliage at flowering time appears to be an important character.

After frequently viewing this galaxy of superb and fascinating floral paintings one can only hope that in time more of these lovely trees can be introduced here to grace our gardens in the spring. Such forms as the double pink 'Imose', and even larger single 'Kirigaya', March-flowering 'Kanzakura', the weeping, double pink 'Shofokuji-shidare'. 'Onaden' with semi-double soft pink blooms, 'Edohigan', an especially fine form of *P. subhirtella* var. *ascendens,* the slender-twigged 'Wakakinosakura' with mahogany-red young leaves and single pale pink flowers, as well as several very distinct and notable forms of the native Yamasakura (nos. 10, 28, 31, & 94) would all be most desirable acquisitions.

It is indeed seldom that a book of this size (10 x 14 ins.) and quality, concerning only one group of plants, is published in these days. The author, the artists and the publishers all deserve our praise and thanks for such a magnificent production, even though the price sets it above the reach of the normal buyer of horticultural books. We are fortunate in being able to purchase it through funds provided for library acquisitions by the Else Frye Unit, no. 8, of the Arboretum Foundation. It will have an honored place on our shelves in the future.

B. O. M.

* * *

The Heather Family (Ericaceae) of British Columbia, by Adam F. Szczawinski. (British Columbia Provincial Museum, Department of Recreation and Conservation, Victoria, B. C., 1962). Handbook No. 19. Price $.50.

THIS HANDBOOK of 205 pages describes all members of the *Ericaceae* family thus far found in British Columbia, the latest collections made as recently as 1961. The author has combined botanical information with interesting facts, comments, distribution maps and drawings to facilitate identification of the Heath family for the layman interested in this most fascinating group of plants and at the same time retains the technical quality of a botanical publication.

Two pages are devoted to the floral parts of heathers with drawings to illustrate them. After comments on nomenclature, identification of heathers (use of keys), distribution in British Columbia and a page on the Vanishing Acres, a key to the genera is given. These are listed alphabetically, each described botanically and the derivation of the name explained. In the case of more than one species in a genus, a key to the species is included.

The author has employed an extremely helpful method of using capital letters and italics for the subjects covered so that specific information required may be found with ease. Each species is handled in the following manner: botanical and common names, synonyms, other common names, description (plant, stem, leaves, flowers and fruit appear in italics with botanical descriptions following.) Other subjects covered are habitat, season, range, distribution in British Columbia, including a small map, and comments by the author. All of the comments are most interesting and enlightening, sometimes including subjects such as adaptability of the plant to the garden, differing opinions on variable species, or in those cases of heaths found very rarely in the Province,

he lists the collectors and the dates that the collections were made. He also comments on plants used by the Indians as food, fuel or for medicinal purposes.

Accompanying each species described is a full page drawing with identifying characteristics enlarged. These lovely illustrations are the work of Miss Betty C. Newton and Miss Ann Hassen. At the end of the handbook there is an extensive glossary and separate indexes to Latin and common names.

In my opinion, "The Heather Family of British Columbia" should be in the library of every person interested in the *Ericaceae* family. Since most of the species described extend to our area, this is of particular interest to us in the State of Washington.

SALLIE D. ALLEN

* * *

Coloured Illustrations of Trees and Shrubs of Japan, by Siro Kitamura and Syoco Okamoto. Published by Hoikusha. Osaka, Japan, 1960. Price $7.50.

I CANNOT in all truth review this elegant little book, for it is, with the exception of the plant names, entirely in the Japanese language. Although I am unfortunate enough not to be able to read its text I can at least enjoy and use the exquisite colored plates, some 68 in all, that comprise the meat of the book. These plates are made up of 451 smaller photographs of Japanese trees and shrubs, 6-10 per page, most of which are close-ups of flowers and/or fruit, although several are habit pictures of trees and several others are studies of bark or wood detail. In all they are among the finest reproductions of colored photographs that I have seen in any book so modestly priced. As added bonus there are over 70 well done line drawings in the text.

I can recommend this volume to anyone interested in ornamental trees and shrubs, in Japanese gardens, or just in beautiful books.

J. A. W.

* * *

The Savory Wild Mushroom, by Margaret McKenny, with the collaboration of D. E. Stuntz. University of Washington Press, Seattle, 1962. Price $3.95.

THIS SMALL paperbound guidebook will be most welcome to all northwesterners who are interested in mushrooms. The author states in her introduction that it is intended to answer the mushroom hunter's question, "Is it good to eat?", and we believe it will do that satisfactorily.

In the first section of the book, sixty-three edible mushrooms are described in detail as to color, size and shape, habitat, season, and other pertinent points. Next comes a section describing fourteen poisonous mushrooms, beginning with the deadly Amanitas. This is followed by a section on Nonpoisonous Mushrooms to Be Avoided, where seven more species are described as being undesirable for reasons varying from bitter flavor to too great resemblance to deadly kinds.

The next section is devoted to Mushroom Cookery. The forty-one recipes for cooking many different species of mushrooms vary from simple to elaborate, and sound delicious. The "pot hunter," as Miss McKenny calls him, is sure to be intrigued with the many ways of preparing mushrooms above and beyond those usually mentioned in cookbooks.

A final section on Mushroom Poisons, by Varro E. Tyler, Jr., professor of Pharmacognosy at the University of Washington, describes four basic types of mushroom toxins, and should leave no doubt in the mind of the reader as to the dangers of haphazard mushroom collecting.

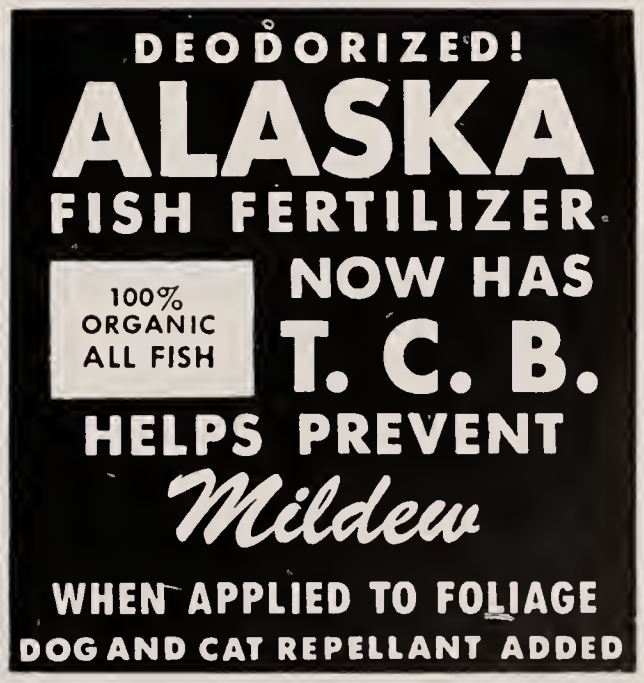
The book is illustrated with color photographs of forty-eight species of mushrooms in their natural habitats. These color plates are for the most part excellent, though one or two seem to have suffered in the printing. There are also thirty-three fine black and white photographs.

As a test of the book's usefulness for people with a limited knowledge of mushrooms, we made a collecting foray into the nearest woods, and gathered some twenty-seven different kinds. Using the descriptions and referring to the photographs, we succeeded in determining the identity of twenty-two of our finds. The remainder were tiny things, not included in the scope of this book, being too small for eating. (It is worth noting that of this casual collection, three species turned out to be poisonous.) We did not try out any of the recipes, but did cook one species new to us, and heartily agree with the author that Blewits are very tasty.

Pictures and descriptions together proved adequate for identification of the mushrooms, although all were not determined with equal ease. Having once upon a time struggled to decide that an Orange Clitocybe was not an edible Chanterelle, I do wish that this species had rated an entire description to itself in the poisonous or undesirable section, preferably with a color plate, instead of just a single sentence of warning among the Chanterelles. I also feel that a photograph and more detailed description of our native *Amanita porphyria* could well have been included, following the photographs and descriptions of the two notoriously poisonous Amanitas from other areas.

A little practice in using this book should enable the "pot hunter" to enlarge the number of species that he now enjoys. Those not interested in the culinary aspects of mushrooms will find it useful for increasing their knowledge of this varied and colorful group of plants which decorate our fields and woodlands.

JEAN WITT



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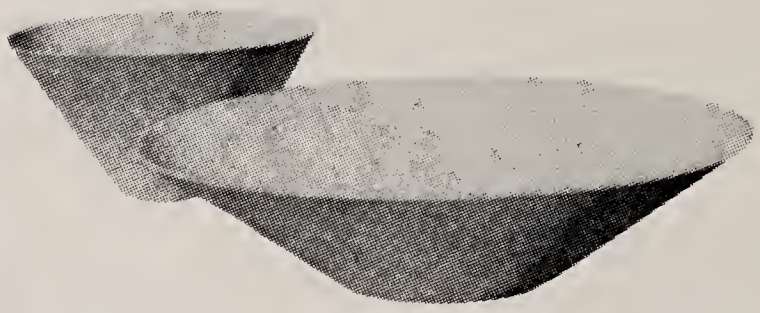

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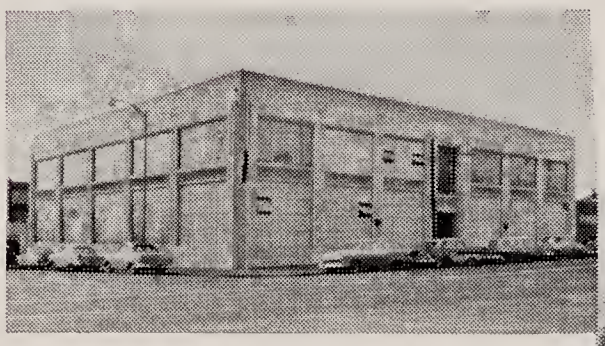

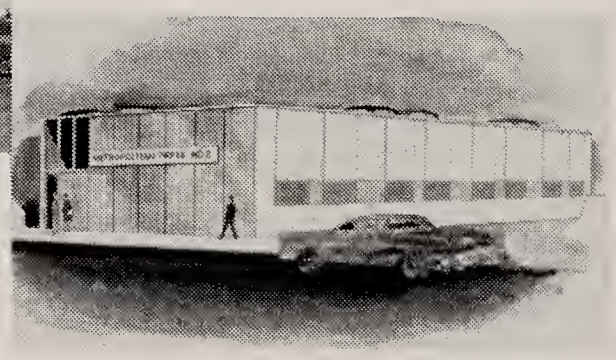

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